Zhichao Chen/ Ziciu Can (Wade-Giles)

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https://ziciucanjustus.github.io/

Experience

Doctor of Philosophy Candidate, College of Control Sceince and Engineering, Zhejiang University Oct 2020–Now
Supervised by Zhihuan Song and Zhiqiang Ge on industrial process data analytics

- Theoretically derived graph mining and utilization of industrial process.
- Derive latent variable learning algorithm from the perspective of optimization/control theory.
- Understanding, Analyzing, and Improving Bayesian inference from the perspective of information geometry.

Research Intern, Microsoft Research AI4Science Asia Apr 2023–Oct 2023
Supervised by Chang Liu and Bin Shao on solving Schrödinger equation with normalizing flow model.

- Development of normalizing flow algorithm.
- Code-base reformulation

Research Intern, Ant Group Aug 2021–Jan 2023
Supervised by Leilei Ding, Jianmin Huang and Wei Chu on cumulative time-series forecasting and large scale multivariate anomaly detection & diagnosis.

- Development of time-series forecasting paper for "red-package" business.
- Development of anomaly diagnosis algorithm for applet monitoring (full-stack).

Undergraduate, School of Chemical Engineering and Technology, Sun Yat-sen University 2016–2020
Supervised by Chang He and Haoshui Yu on chemical process optimization using GAMS.

- Synthesize of "organic Rankine cycle-heat integration-wastewater desalination" Coupled System

Education

Ph.D. Control Theory & Engineering, Zhejiang University (exp.) 2025

B.S. Chemical Engineering & Technology, Sun Yat-sen University 2020

Services

Reviewer,

- **Conference**: ICLR-2024 ICML-2023, ICML-2024 ,
- **Journal**: IEEE TNNLS

Awards

Undergraduate National Scholarship, Ministry of Education (China) 2018,2019

The First Prize Scholarship of Sun Yat-sen University, Sun Yat-sen University 2017,2018,2019

One Hundred Outstanding Students of Sun Yat-sen University, Sun Yat-sen University 2021

The First Prize Scholarship, Zhejiang University 2020,2021

Competences

Languages Chinese (*native*), English (CET-6, 533)

Techniques Python, GAMS, MATLAB, Optimization, Optimal Control

Backends PyTorch, JAX, PyRO

First-Authored Publications (Accepted)

[1] Improving Data-Driven Inferential Sensor Modeling by Industrial Knowledge: A Bayesian Perspective. *IEEE Transactions on Systems, Man and Cybernetics: Systems* (CCF-B, IF=8.6, JCR-Q1)

[2] Diffusion Model-based Numerical Tabular Data Imputation: A Wasserstein Gradient Flow Perspective. *The Thirty-Eighth Annual Conference on Neural Information Processing Systems (NeurIPS 2024), Main Track, Poster* (CCF-A), 2024.

[3] E^2AG: Entropy-Regularized Ensemble Adaptive Graph for Industrial Soft Sensor Modeling. *IEEE/CAA Journal of Automatica Sinica* (Top-1, IF=15.3, JCR Q1, Regular Paper), 2024.

[4] Analyzing and Improving Supervised Nonlinear Dynamical Probabilistic Latent Variable Model for Inferential Sensors. *IEEE Transactions on Industrial Informatics* (CCF-C, IF=11.7, JCR Q1, Regular Paper), 2024. doi: 10.1109/TII.2024.3435466

[5] Variational Inference Over Graph: Knowledge Representation for Deep Process Data Analytics. *IEEE Transactions on Knowledge and Data Engineering* (CCF-A, IF=8.9, Regular Paper), 2023. doi: 10.1109/TKDE.2023.3327415

[6] Unsupervised Anomaly Detection & Diagnosis: A Stein Variational Gradient Descent Approach. In: *CIKM'23* (CCF-B, Short Paper), Birmingham, England, 2023. doi: 10.1145/3583780.3615167

[7] Monotonic Neural Ordinary Differential Equation: Time-series Forecasting for Cumulative Data. In: *CIKM'23* (CCF-B, Applied Research Paper), Birmingham, England, 2023. doi: 10.1145/3583780.3615487

[8] Directed Acyclic Graphs With Tears. *IEEE Transactions on Artificial Intelligence* vol. 4, no. 4, 972-983, 2023. doi: 10.1109/TAI.2022.3181115

[9] Knowledge Automation Through Graph Mining, Convolution, and Explanation Framework: A Soft Sensor Practice. *IEEE Transactions on Industrial Informatics* (CCF-C, IF=11.7, JCR Q1, Regular Paper) vol. 18, no. 9, 6068-6078, 2022. doi: 10.1109/TII.2021.3127204

[10] Stochastic optimization-based approach for simultaneous process design and HEN synthesis of tightly-coupled RO-ORC-HI systems under seasonal uncertainty. *Chemical Engineering Science* vol. 246, 116961, 2021. doi: 10.1016/j.ces.2021.116961

Co-Authored Publications (Accepted)

[1] Optimal Transport for Treatment Effect Estimation. *NeurIPS 2024* (CCF-A, Main Track), 2023.

[2] ESCM^2: Entire Space Counterfactual Multi-Task Model for Post-Click Conversion Rate Estimation. In: *SIGIR'22* (CCF-A, Research Article), Madrid, Spain , 2022. doi: 10.1145/3477495.3531972